

Origin of the Herreshoff Rowboat.



L. Francis Herreshoff is most famous for designing the H28 cruising sloop and the beautiful and successful Ticonderoga. The latter was designed as a 72 foot cruising boat which went on to become a famous racer that broke many sailing records. He is regarded as the Da Vinci of yacht design. Here he describes his thoughts leading up to the design of the Herreshoff rowboat.

The wherry he refers to was a type of boat that was traditionally used for carrying passengers or cargo on rivers and canals in England. In 1820 there were 3000 wherries plying the Thames while only 1200 hackney coaches serviced the same area, presumably because of the lack of roads.



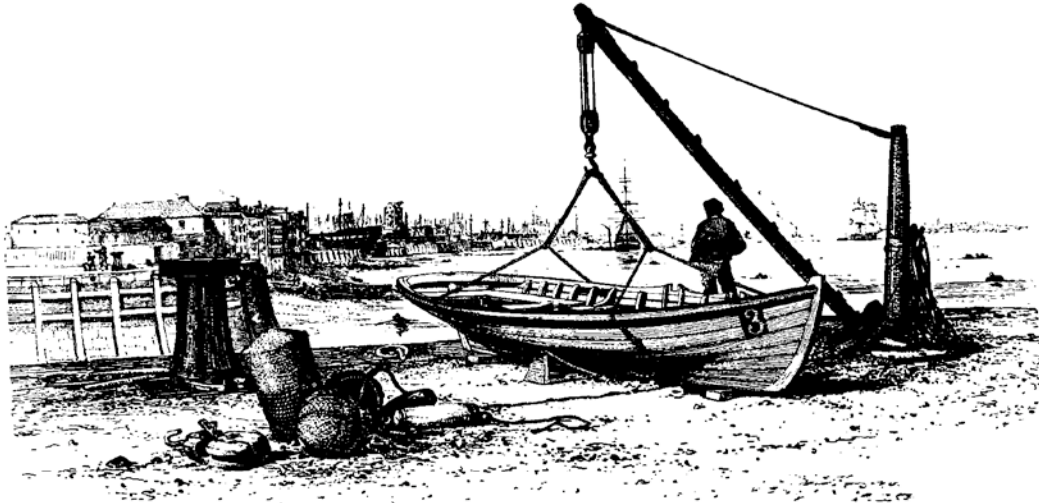
Ticonderoga

The following is an extract from his book “The Common Sense of Yacht Design.”

In my youth and before, the boat builder’s trade or profession was looked on as a craft quite apart from that of a ship carpenter. This difference was perhaps as great as that between the work of the house carpenter and the cabinetmaker. While the ship carpenter has always looked down on the house carpenter as a wood butcher, still both of their trades have several branches requiring different degrees of skill, for the stair builder who does a fine job on a spiral stairway deals with as many curves and bevels as the ship carpenter. However the framer, the roofer, the floorer and the lather at present time require no other credentials than a union card, while the planker, caulker, outboard joiner and the spar maker need, besides the union card, several special tools and considerable skill, in fact so much that I rather look askance on those who lack a few gray hairs. While a recent incumbent as president has suggested that all workers should be retired before they reach the age of skill, I must say that the best ship carpenters I have known were nearing four score.

I remember one of these old fellows who used to work at the George Lawley Company who could get out an irregularly shaped piece, like the corner of a deckhouse, from very few measurements. He would scribe on a piece of pine the crown of the deck, the slope of the sheer and a few other bevels, and then retire to a bench where presently, with the aid of a draw knife, a chisel and a jack plane, he had shaped a piece of mahogany that fitted perfectly. In fact after it was driven in place and anchored with a key, it would be hard to slide a piece of paper into any of the several seams. Some of these old boys lacked two or three fingers, for during their apprenticeship of some fifty or sixty years they had lost one perhaps every twenty years or so, but it seemed to have no effect on their skill. I remember one very well who had the thumb and middle finger on his right hand and those digits had grown to unusual proportions so that the hand resembled a great lobster claw, but it could connect with a plane or saw as well as any hand, in fact generally when it made contact with any of the ship building tool it sounded rather like the coupling of two freight cars coming together, for some of these men had grown as hard as the oak they had been working for three score years. They had acquired the colour of oak and gave off about the same pungent acid smell. Yes, some of them were tough all right. The temperature and weather made little difference to them. They would stand a surprising amount of abuse from anyone they respected, but let someone try to boss them who did not know a cant frame from a knighthead and they would soon kick over the traces. They were about as docile and easy to handle as wild bulls.

When my father was in his old age and had been running a yacht yard for some seventy-five years he told me once that if he could get together a handful of good ships carpenters (he called them “old fashioned mechanics”) he could build yachts better and cheaper without any power tools than with a whole shop filled with moulding machines, cutting off saws, buzz planers and morticers, for as he said, “The old fashioned mechanic could get out a piece of work right on the job with his adze and jack plane without walking to the buzz planer, the band saw and the moulder. Nine chances out of ten the old fashioned mechanic will have his part fitted in place before the modern mechanic has adjusted the cutters in the moulding machine, and what’s more, it will be a wood to wood fit which the young man can’t do any more since they have lost the use of their hands”



The reader may say, "Well, there are no old fashioned mechanics anymore," to which I will say, "I think you are mistaken. The real trouble is that the modern efficiency expert does not understand them and the young boss can't handle them, so they are let go." And this is a real shame for both parties suffer. The worst part about it is that if you let the old fellows die in the traces they will live to a very old age, but when they are retired they usually crack up in a few months.

I want to apologise to the reader for taking so much of his time, but I would like to have him see the difference between the ship carpenter and the boat builder, for the latter builds the small craft that we are about to talk about in this chapter. I wish it were in my power to write something about the boat builders so you would understand him better and have a higher appreciation of his work. He is quite a different fellow from the ship carpenter. As I have said before, he is in the nautical world what the cabinetmaker is to the landmen. He uses many of the same tools and quite often works in the same varieties of wood.

The ship's carpenter's tools are quite large and heavy and his kit usually contains a broadaxe, an adze, a slicker (a very heavy two handed chisel), several mortising chisels, a smooth plane and several jack planes, and of course a grease pot, for a judicious use of lubrication on the bottom of a plane, spur of a bit, or even on the edge of the chisel will sometimes increase its efficiency fifty per cent. There are the rip and crosscut saws that he lubricates with thin oil, besides one or two smaller hammers, a top mall (a conical shaped light sledge), and the ship carpenter is the only one who can use this particular tool without causing damage to the surrounding woodwork. However I must say that I have seen ship carpenters who could do a great variety of work with very few tools.



Fig. 354. Wherries of about 1820

The boat builder's kit is quite different and may easily contain one hundred items, some of which are quite expensive, for beside all the cabinetmaker's tools, he has several tools peculiar to his trade, most of which he has to make himself. His gouges, chisels, plane blades, etc., are generally fine English steel and he is a great connoisseur of tools, all of which he keeps in a chest of rather gaudy but fine workmanship. When he builds this casket to contain his thousand dollar kit he casts his natural good taste to the winds and allows his imagination full play. This tool chest may have been built up of alternate layers of cherry and white maple bounded in rosewood, with brass corners and edges.



Fig. 355. So called stationer's barges

The boat builder is generally a gentle quite sensitive man and very much of an artist; in fact, though few seem to know it, his work of a much higher order than that of the cabinetmaker. His creations must be able to withstand shrinking and swelling when left soaking in the water. They must be strong and light. Almost every part of his product can be seen inside and out and therefore every part of the product of the same quality, which is quite different

from the cabinetmaker's work, for if you look at the underside of a table or the carcass and frame of a cabinet or highboy you will see some surprisingly poor and slipshod work. The boat builder can easily turn his hand to cabinetwork and excel the cabinet worker, but the cabinetmaker cannot do strong light boat work. The boat builder builds rowboats, tenders, dinghies and lifeboats, sometimes canoes and rowing shells, but in this country the latter are usually built by specialists who could hardly build a tender that could stand any abuse.

THE COMMON SENSE OF YACHT DESIGN

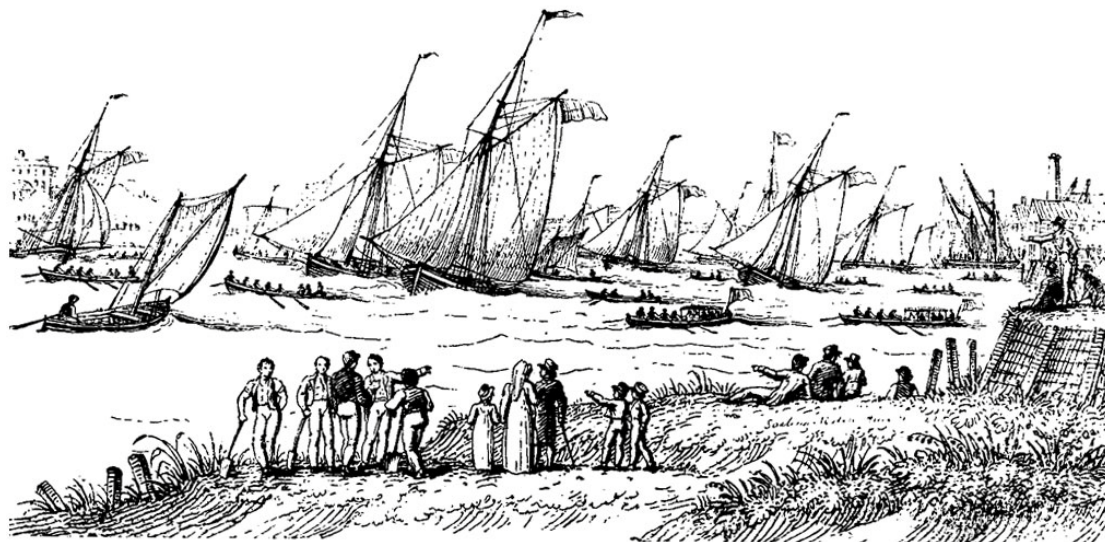


Fig. 356. Sailing match of August, 1824

That the boat builder excels all others as the maker of wooden planes there is no doubt for, besides making his own planes, he often makes them for the ship carpenter and occasionally for the cabinetmaker. These planes that he makes will throw a shaving right up over one's shoulder. When his planes are sharpened right, cap iron set right and lubricated properly, they will push with little effort. They do not make a tearing noise like some other planes but rather a pleasant swish, like a small wave breaking under the counter.

The older boat builder used to be able to set up a shadow (midship section mould) on top of his keel with the stem at one end and the sternboard at the other and plank a rowboat up mostly by eye. Of course this could only be done with a lapstreak boat where each plank, as it was sprung in place, was fastened to the previous plank with rivets or clenched nails. This was a remarkably cheap way to build a boat; still some of them were very good and lasted a long while.

Before 1900 many of the sections along our New England coast had slightly different methods of building, and about this time I myself was working in the rowboat shop, so these methods seemed very interesting. The seined boats built at Gloucester (and some were very nice) were quite different from the whaleboats built at New Bedford, while the yacht tenders built in Massachusetts by Lawley's differed in almost all details from those built in Rhode Island by the Herreshoffs. About this time the small boat was beautifully built and every part, model, construction and internal arrangement was for some specific reason the result of much experience, and, as often happens, out of perfect adaptation to use came beauty. To me the seine boat, the whaleboat and some of the tenders seemed works of art seldom equalled in any man-made thing. Yes, they were nearly of a quality to equal the Elgin marbles and I must admit they said much more to me. We in the thirteen original states were lucky to have our skill in boat building handed down to us from several countries, for

besides England and Scot-land we have been influenced by the Dutch, French and Nordics, all of whom were among our early settlers.

However the small light rowboat was perfected in England and for centuries that country has looked upon rowing as a manly art. No doubt the English inherited their love of rowing from the several Danish invasions and, being a sporting nation, they have always held many rowing races. I believe England acquired her skills in boat building from the Dutch, just as she inherited much of her art of cabinetmaking from that talented nation, and so after 1600 or 1700 England was excelling all other nations in boat building and cabinet work. She did this because she adopted simpler and better designs and because her subjects appreciated downright honest workmanship. Anyone who reads Pepys' diary can see that a great deal of travel about London and southern England during this time was by barge and wherry. This was about 1660, and for the next two hundred years the rowboat in various forms was a very important part of English life.

Figure 354 shows some wherries of about 1820. This is a contemporary etching by E.W. Cooke. Figure 355 shows some larger craft, the so called stationers barges, which were used on the Thames for several centuries on state occasions. This latter is an etching by Henry Moses, as is figure 356 which shows a sailing match of August, 1824, and you will note that the rowboats rather dominate the picture. Of course many of the English wherries of the nineteenth century were owned and used by professional watermen who took passengers from place to place in sheltered waters, for the wherry was on the water what the hackney coach was on shore. So, together with the privately owned wherries, gigs and scull, there must have been work for several hundred boat builders constantly from 1600 to 1900. I am only telling this so the young designer can see where and how the skills in light boat building came about.

In this country we also had many rowing clubs between 1860 and 1890 but as usual we rather went to extremes, so that the racing scull and the shell were the most in vogue. This sort of craft was easily damaged and not fit to land on varied shores, so these defects rather interfered with their usefulness for a pleasant day outing. It is too bad that we never developed a good all around rowboat similar to the type so popular at the present time in Holland and Germany, for almost nothing will give a person a greater feeling of wellbeing than a good long row. It is strange so many Americans cannot visualise that there is a place between the racing scull and the heavy ill shaped rowboat of several hundred pounds' weight, but a row in a boat that is of less than one hundred pounds' weight and about seventeen feet long can be most pleasant. In a rowboat you are propelled without any noise or expense of fuel; you can explore shallow water regions without damaging your propeller. If it becomes a little cool you can keep yourself warm quite easily. In fact, rowing in temperatures nearly down to freezing is very comfortable. While it is true that rowing races are apt to shorten one's life, still rowing for pleasure will greatly lengthen the life span. But best of all, it will reduce the waistlines.

Rowing in general seems to have started its decline soon after the bicycle came into popularity during the 1890's. Then the motorcycle and the automobile caused a great rush for the highways, but now that the rush is away from the highways it is strange that the rowboat and the wherry have been almost entirely overlooked. Perhaps the principle reason is that we have not had sensible rowboats of late years, but one like figure 357 would be a good sea boat, very easy to row and not difficult to plank up. You see she is quite different from the so called St. Lawrence skiff which has been the usual type of rowboat in this county for the last sixty years, but the St. Lawrence skiff is too straight along the garboard to row

easily or turn quickly in a sea. She has too hard a bilge to build easily and is consequently expensive. She is too narrow at the gunwale to use with long oars, and too heavy for every purpose.

Perhaps the only hope of having the rowboat again become popular is to encourage the fair sex to take an interest in it, and I am sure if they realised how pretty a girl looks when she is rowing they would again take to the oar. If they realised that there was nothing in the world better for them, that would help too, for if getting out in the sunlight is beneficial, certainly a light exercise in the sun at the same time is far better than lying in the sun acquiring a headache and layers of fat on parts which are unbecoming.

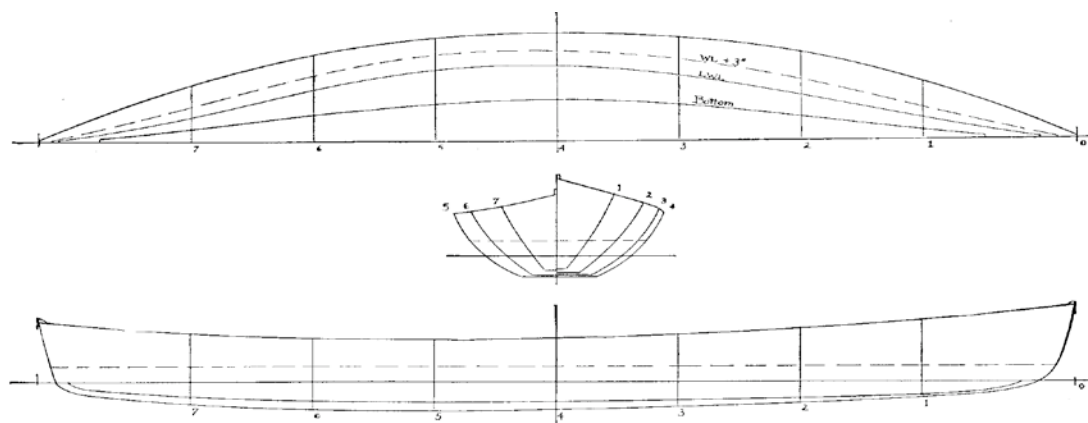


Fig. 357. A rowboat, easy to row, to plank up, and a good sea boat. L.O.A. 17 feet, beam 3 feet 6 inches

John Gardner's contribution:

John Gardner is a highly thought of small boat designer and builder. He has developed the concept proposed by Herreshoff and his modifications and rationale are described in his book, "Building Classic Small Craft". Here follows a summary.

In 1955 an Alan Vaitses made a rowboat to the Herreshoff design. According to Vaitses (in Rudder, January, 1955) the boat was at least twice as fast as an ordinary rowboat and would outdistance anything under oars except racing shells. However he did point out that, when the boat was pulled straight on into a steep chop, her sharp bow tends to knife into solid water.

John Gardner commented about the above problem as follows; "this boat as originally designed, did not have much buoyancy in its ends. What I have attempted to do is to add buoyancy and lift but without slowing down the boat by spoiling Herreshoff's fine entrance at the load line. I do not say that the boat as now revised will not take water in a head sea, but I believe it will take considerably less."

This was the boat I saw my friend Jim Rae building on Dangar Is. I had been determined to design and build a superior commuter boat than we were currently using. However I could see straight away that this was a design that I could not improve. The problem with most rowing skiffs was that the need for stability required a fair water line beam amidships causing problems with wetted surface and wave making. With this boat, the flat bottom with its inherent stability allowed the desired narrower waterline beam. Furthermore in the building of the fibreglass version of the boat I have been able to concentrate the strength in the bottom with sandwich construction and allow the curvature of the sides to permit a thinner layup. As well the seats are moulded into the sides for further strength and

buoyancy. This has resulted in a boat that weighs in at 32 kg. (70 lbs.) This is considerably less than the 100 lbs. that Herreshoff had envisaged.

I often refer to the boat I build as a Swift Dory but would be best described as a Gardner modified Herreshoff rowboat. A proper dory has flat bottom and flat sides so the design is not really a dory but can be described as a semi-dory.

Performance:

Alan Valises regularly rowed his Herreshoff rowboat across the mile wide harbour between his home on Mattapoissett Neck and Burr Brothers' Boat Yard on Neds point in Massachusetts. His comments on the boats performance were as follows: "Frequent trips across the harbour indicated a top average speed of 6m.p.h. (5.2 knots) with ordinary 7 1/2 foot oars and a stationary thwart. A speed of 4 to 5 M.P.H. could be kept up indefinitely, and short bursts of 7m.p.h. (6.1 knots) are possible. With spoon oars and a sliding seat she would undoubtedly do better." (Excerpt from "[Building Classic Small Craft](#)" by John Gardner.)

He record for our race around Dangar Is. implies an average speed of 5.6 knots (6.44 M.P.H.) this speed was achieved by an extremely fit young Asher Ashwood using spoon ("turbo") oars. I have no doubt his top speed would be in the order of 7m.p.h. (6.1knots) as recorded by Alan Valises. I do not agree that a sliding seat would improve the time for three reasons. Moving the weight so far back and forth in the boat and the extra time between strokes will cancel out the extra power available. Furthermore attempts to drive the boat too far above its design displacement speed of 5.6 Knots will result in wasted energy. However I have noticed that there is a sliding seat version of the Swift Dory commuting on Dangar Is. and will try to have it entered in next year's race, to see if I can make a liar of myself.

Thanks to David N. Goodchild of Shellbacks Library for permission to use extracts from "The Common Sense of Yacht Design" by Francis Herreshoff.

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